



DOCKET NO.: H0498.70164US00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

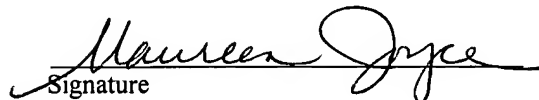
Applicant: Charles M. Lieber, et al.  
Serial No.: 10/020,004  
Confirmation No.: 7232  
Filed: December 11, 2001  
For: NANOSENSORS

Examiner: Victor A. Mandala  
Art Unit: 2826

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**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to MAIL STOP RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 19 day of November, 2004.

  
Signature

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**MAIL STOP RCE**  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**STATEMENT FILED PURSUANT TO THE DUTY OF  
DISCLOSURE UNDER 37 C.F.R. §§1.56, 1.97 AND 1.98**

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicants request consideration of this Information Disclosure Statement.

**PART I: Compliance with 37 C.F.R. §1.97**

This Information Disclosure Statement has been filed before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. §1.114.

No fee or certification is required.

PART II: Information Cited

The Applicants hereby make of record in the above-identified application the information listed on the attached form PTO-1449 (modified). The order of presentation of the references

The Applicants would like to bring to the Examiner's attention the following co-pending applications that may contain subject matter related to this application:

<u>Serial No.</u>	<u>Filing Date</u>	<u>Inventors</u>
10/734,086	December 11, 2003	Lieber, et al.

PART III: Remarks

Documents cited anywhere in the Information Disclosure Statement are enclosed unless otherwise indicated. It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application;
3. The citations for the information be printed on any patent which issues from this application.

By submitting this Information Disclosure Statement, the Applicants make no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.

By submitting this Information Disclosure Statement, the Applicants make no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicants make no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

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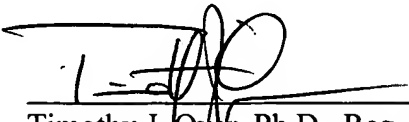
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Art Unit: 2826

Notwithstanding any statements by the Applicants, the Examiner is urged to form his own conclusion regarding the relevance of the cited information.

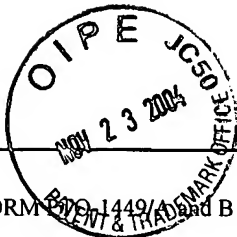
An early and favorable action is hereby requested.

Respectfully submitted,

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Tani Chen, Sc.D., Reg. No. 52,728  
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Date: November 19, 2004

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FORM PTO-1449/A and B (Modified)

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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EXAMINER: Victor A. Mandala

Sheet 1 of 3

## U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or of issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
	72	3,873,359		Lando	03-25-1975
	73	3,873,360		Lando	03-25-1975
	74	3,900,614		Lando	08-19-1975
	75	5,252,835		Lieber et al.	10-12-1993
	76	5,512,131		Kumar et al.	04-30-1996
	77	5,537,075		Miyazaki	07-16-1996
	78	5,581,091		Moskovits et al.	12-03-1996
	79	5,726,524		Debe	03-10-1998
	80	5,840,435		Lieber et al.	11-24-1998
	81	5,864,823		Levitan	01-26-1999
	82	6,159,742		Lieber et al.	12-12-2000
	83	6,190,634	B1	Lieber et al.	02-20-2001
	84	6,559,468	B1	Kuekes et al.	05-06-2003
	85	6,716,409	B2	Hafner et al.	04-06-2004
	86	2002/0084502	A1	Jang et al.	07-04-2002
	87	2002/0112814	A1	Hafner et al.	08-22-2002
	88	2002/0122766	A1	Lieber et al.	09-05-2002
	89	2002/0130311	A1	Lieber et al.	09-19-2002
	90	2002/0130353	A1	Lieber et al.	09-19-2002
	91	2002/0146714	A1	Lieber et al.	10-10-2002
	92	2002/0172820	A1	Majumdar et al.	11-21-2002
	93	2002/0175408	A1	Majumdar et al.	11-28-2002
	94	2003/0089899	A1	Lieber et al.	05-15-2003
	95	2003/0156992	A1	Anderson et al.	08-21-2003
	96	2003/0186522	A1	Duan et al.	10-02-2003
	97	2003/0200521	A1	DeHon et al.	10-23-2003
	98	2004/0005723	A1	Empedocles et al.	01-08-2004
	99	2004/0026684	A1	Empedocles	02-12-2004
	100	2004/0095658	A1	Buretea	05-20-2004
	101	2004/0112964	A1	Empedocles et al.	06-17-2004
	102	2004/0118448	A1	Scher	06-24-2004
	103	2004/0136866	A1	Pontis	07-15-2004
	104	2004/0146560	A1	Whitehead	07-29-2004

## FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document (not necessary)	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/ Country	Number	Kind Code			
	105	WO	95/02709	A2	President and Fellows of Harvard College	01-29-1995	



FORM PTO/A and B (Modified)

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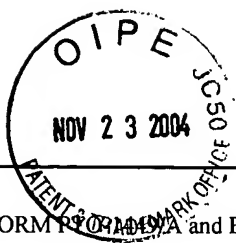
Sheet 2 of 3

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		Office/Country	Number	Kind Code			
	106	WO	96/29629	A2	President and Fellows of Harvard College	09-26-1996	
	107	WO	97/33737	A1	President and Fellows of Harvard College	09-18-1997	
	108	WO	97/34025	A1	President and Fellows of Harvard College	09-18-1997	
	109	WO	00/51186	A1	Joseshp E. Clawson, Jr.	08-31-2000	
	110	WO	02/080280	A1	The Regents of the University of California	10-10-2002	
	111	WO	03/053851	A2	President and Fellows of Harvard College	07-03-2003	
	112	WO	03/063208	A2	California Institute of Technology	07-31-2003	
	113	WO	04/010552	A1	President and Fellows of Harvard College	01-29-2004	
	114	WO	04/032190	A2	Nanosys, Inc.	04-15-2004	
	115	WO	04/032193	A2	Nanosys, Inc.	04-15-2004	
	116	WO	04/034025	A2	Nanosys, Inc.	04-22-2004	

## OTHER ART — NON PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)	
	117	CHEUNG, C.L., et al. "Diameter-Controlled Synthesis of Carbon Nanotubes," <i>J. Phys. Chem. B.</i> , <b>106</b> , (2002), pp: 2429-2433		
	118	DUAN, X., et al., "Nonvolatile Memory and Programmable Logic from Molecule-Gated Nanowires," <i>Nano Letters</i> , <b>2</b> (5), (2002), pp: 487-490		
	119	DUAN, X., et al., "Single-nanowire electrically driven lasers," <i>Nature</i> , <b>421</b> , (2003), pp: 241-245		
	120	GUDIKSEN, M., et al., "Synthetic Control of the Diameter and Length of Single Crystal Semiconductor Nanowires," <i>J. Phys. Chem. B</i> , <b>105</b> , (2001), pp: 4062-4064		
	121	GUDIKSEN, M, et al., "Size-Dependent Photoluminescence from Single Indium Phosphide Nanowires," <i>J. Phys. Chem. B</i> , <b>106</b> , (2002), pp: 4036-4039		
	122	HOLMES, J. et al., "Control of Thickness and Orientation of Solution-Grown Silicon Nanowires," <i>Science</i> , <b>287</b> , (2000), pp: 1471-1473		
	123	HU, J., et al., "Controlled growth and electrical properties of heterojunctions of carbon nanotubes and silicon nanowires," <i>Nature</i> , <b>399</b> , (1999), pp: 48-51		
	124	HU, J., et al., "Chemistry and Physics in One Dimension: Synthesis and Properties of Nanowires and Nanotubes," <i>Acc. Chem. Res.</i> , <b>32</b> , (1999), pp: 435-445		
	125	HU, S., et al., "Serpentine Superlattice Nanowire-Array Lasers," <i>J. of Quant. Electron.</i> , <b>8</b> , (1995), pp: 1380-1388		
	126	HUANG, Y. et al., "Gallium Nitride Nanowire Nanodevices," <i>Nano Letters</i> , <b>2</b> (2), (2002), pp: 101-104		
	127	HUANG, M., et al., "Room-Temperature Ultraviolet Nanowire Nanolasers," <i>Science</i> , <b>292</b> , (2001), pp: 1897-1899		
	128	JOHNSON, J., et al., "Single gallium nitride nanowire lasers," <i>Nature</i> , <b>1</b> , (2002), pp: 106-110		
	129	JOHNSON, J., et al., "Single nanowire lasers," <i>J. of Phys. Chem.</i> , <b>105</b> (46), (2001), pp: 11387-11390		
	130	JOSELEVICH, E., et al., "Vectorial Growth of Metallic and Semiconducting Single-Wall Carbon Nanotubes," <i>Nano Letters</i> , <b>2</b> (20), (2002), pp: 1137-1141		
	131	KONG, J., et al., "Chemical vapor deposition of methane for single-walled carbon nanotubes," <i>Chem. Phys. Letters</i> , <b>292</b> , (1998), pp: 567-574		



FORM PTO/AIA and B (Modified)

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Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
	132	KONG, J., et al., "Synthesis of individual single-walled carbon nanotubes on patterned silicon wafers," <i>Nature</i> , <b>395</b> , (1998), pp: 878-881	
	133	LAUHON, L., "Epitaxial core-shell and core-multishell nanowire heterostructures," <i>Nature</i> , <b>420</b> , (2002), pp: 57-61	
	134	MARTEL, R. et al., "Single-and multi-wall carbon nanotube field-effect transistors," <i>Applied Physics Letters</i> , <b>73</b> (17), (1998), pp: 2447-2449	
	135	RUECKES, T., "Carbon Nanotube-Based Nonvolatile Random Access Memory for Molecular Computing," <i>Science</i> , <b>289</b> , (2000), pp: 94-97	
	136	STAR, A., et al., "Preparation and Properties of Polymer-Wrapped Single-Walled Carbon Nanotubes," <i>Angew. Chem. Int. Ed.</i> , <b>40</b> (9), (2001), pp: 1721-1725	
	137	THESS, A., "Crystalline Ropes of Metallic Carbon Nanotubes," <i>Science</i> , <b>273</b> , (1996), pp: 483-487	
	138	WANG, N. et al., "SiO <sub>2</sub> -enhanced synthesis of Si nanowires by laser ablation," <i>Applied Physics Letters</i> , <b>73</b> (26), (1998), pp: 3902-3904	
	139	WEI, Q., et al., "Synthesis of Single Crystal Bismuth-Telluride and Lead Telluride Nanowires for New Thermoelectric Materials," <i>Mat. Res. Soc. Symp. Proc.</i> , <b>581</b> , (2000), pp: 219-223	
	140	WONG, S., et al., "Covalently functionalized nanotubes as nanometre-sized probes in chemistry and biology," <i>Nature</i> , <b>394</b> , (1998), pp: 52-55	
	141	YANG, P., et al., "Controlled Growth of ZnO Nanowires and Their Optical Properties," <i>Adv. Funct. Mater.</i> , <b>12</b> (5), (2002), pp: 323-331	
	142	ZHOU, G. et al., "Growth morphology and micro-structural aspects of Si nanowires synthesized by laser ablation," <i>J. of Crystal Growth</i> , <b>197</b> , (1999), pp: 129-135	
	143	International Search Report in PCT Application No. PCT/US03/22061, Int'l Filing Date, 07/16/2003	
	144	International Search Report in PCT Application No. PCT/US01/48230, Int'l Filing Date, 12/11/2001	
	145	International Preliminary Examination Report in PCT Application No. PCT/US01/48230, Int'l Filing Date, 12/11/2001	
	146	Written Opinion in PCT Application No. PCT/US01/48230, Int'l Filing Date, 12/11/2001	
	147	Office Action mailed 6/30/04 in co-pending U.S. Patent Application No. 10/196,337, filed 07/16/02	
	148	Office Action mailed 9/15/04 in co-pending U.S. Patent Application No. 09/935,776 filed 08/22/01	

EXAMINE R

DATE CONSIDERED

#EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.